

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 65956

January 28, 2011 7:41:51 AM



Page 2

Item ID:	D6104-005	Accept		Setup	Start	
Revision ID:					Stop	
Item Name:	Round Billet, 17-4					
Start Date:	1/28/11	Start Qty:	10.00		Cust Item ID:	
Required Date:	2/11/11	Req'd Qty:	10.00		Customer:	
Reference:						

Approvals:	Process Plan:	Date:	Tooling:	Date:	Run	Start	
	QC:	Date:	SPC (Y/N):	Date:		Stop	

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130	Identify as per dwg & Stock Location: <u>MAT</u>	0.00							
Packaging	Memo	0.00							
Packaging									
140	QC21- Final Inspection - Work Order Release	0.00							
QC	Memo	0.00							
Quality Control									

MF
11-02-08

11/02/08 JF

MF
11-02-08

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NOTE: Date & initial all entries

Picklist Print

January 28, 2011 7:41:51 AM

Page 1

Work Order ID: 65956



Parent Item: D6104-005



Parent Item Name: Round Billet, 17-4



Start Date: 1/28/11

Required Date: 2/11/11

Start Qty: 10.00

Required Qty: 10.00

Comments: IPP A: ☐01.05.08☐New Issue EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6104-005P  17-4 SS Roundbar 4.00"OD		Purchased	No			110	Each	0.0000	1 	10		<i>Rec'd 2/7/11</i>	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

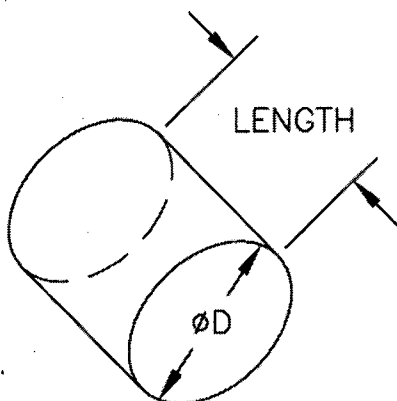


DESIGN RF	DRAWN BY 	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED 	APPROVED 	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED

02.11.29

SPECIFICATION CONTROL DRAWING



CL 11101128
W10.65956

MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRC)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

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Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO13392

Purchase Order Date 1/28/11

PO Print Date 1/28/11

Page Number 2 of 2

Order From :

VC-MET001

METAUX CASTLE

A.M. CASTLE & CO. (CANADA) INC. - BOX B9204 PO BOX 9100

TORONTO, ON M4Y 3A5

CA

Contact Name

Vendor Phone

514 694 9575

Vendor Fax

514 695 3281

Vendor Account Nbr

Buyer

Chantal Lavoie

Requisition Nbr

Tax Resale Nbr

10127-2607

Terms

Net 30

Currency

CAD

FOB

Destination-Collect

3

D6103-003P

round alum billet

2/11/11

Yes

10.00 Yours ppd

Each

\$71.0000

\$710.00

Special Inst:

AS PER DWG D6103 REV. B

B65955

MATERIAL: 7075-T7351 AS PER QQ-A-225/9

SIZE: 3.500" X 12.500" LONG

TOLERANCE SAME AS ABOVE

4

D6104-005P

17-4 SS Roundbar 4.00"OD

2/11/11

Yes

10.00 Yours ppd

Each

\$76.0000

\$760.00

Special Inst:

AS PER DWG D6104 REV. B

B65956

MATERIAL: 17-4 PH STAINLESS STEEL

AS PER AMS 5643 OR AISI 630

SIZE: 4.00" X 5.10" LONG

TOLERANCE SAME AS ABOVE

PO Total:

\$4,275.00

MATERIAL CERTIFICATION
REQ'D UPON DELIVERY

h c

Change Nbr:

1

Change Date: 1/28/11

No substitution or deviation without
consent.
Certificate of Conformity or Material
Certification required when applicable

**Castle Metals®**

A. M. Castle & Co.

PACKING SLIP

Page 1 of 1

Shipment No:668988

Ship From: Castle Metals MONTREAL 835-SELKIRK AVENUE POINTE CLAIRE, QUEBEC H9R 3S2		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped 04-FEB-11	F.O.B. ORIGIN	Freight Terms Prepaid		Carrier LOCAL FLEET		BOL No 668988-4	

Shipment Details	Final Destination Branch - MON
-------------------------	---------------------------------------

Order No 1249273	Line No 2	Item No 42464.MO	Description 4.0000.RD.17CR-4NI.STAINLESS.RT.SOL TR.COND A.132.0000-156.0000 CUT TO 5.1 IN (+ .0620/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: AMS 5643				
Purchase Order No 13392		Part Number		Ordered Qty 10 PCS		Invoice Qty 10 PCS	
Details							
Delivery No. 67552321	Mill	Heat Number 135314	Mech Id	PCS 10	Width (IN)	Length (IN)	Shipped Qty (LBS) 187.29

These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Reviewed by Authorized Castle Metals Representative:

Date:

aml 11/02/08

CERTIFICATE OF TESTS

ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE CONTROLE

CERT SERIAL# 000736570



TALLEY METALS

A Carpenter Company

Talley Metals Technology, Inc.

205 Talley Metals Lane

McRae, SC 29101 Tel: (610) 208-2000, (800) 338-4592

08/05/10

CUSTOMER/BESTELLER/CLIENT

A.M. CASTLE & CO

3400 N WOLF RD

FRANKLIN PARK IL 60131

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SELLER/VERKAUFER/VENDEUR PAGE 2 OF 2

HVL

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE	CARPENTER NO./WERKS-NR./N° DE REFERENCE INTERNE	DATE/DATUM/DATE	WEIGHT/GEWICHT/POIDS
58282-007	W71565	08/05/10	1455.000

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE:

CAPABILITY

135314

900 F (482 C) . 01 HR

AIR COOL

YIELD STRENGTH, (0.20 %) KSI (MPA)

178.0 (1227)

TENSILE STRENGTH, KSI (MPA)

199.0 (1372)

ELONGATION IN 2.00", %

15.0

REDUCTION OF AREA, %

48.0

HARDNESS, HBW

396.0

(CONVERTED FROM TENSILE STRENGTH)

NO WELD REPAIR PERFORMED

MATERIAL PRODUCED ON THIS ORDER WAS MELTED AND MANUFACTURED IN THE U.S.A. MATERIAL HAS BEEN MELTED IN USA OR QUALIFYING COUNTRY TO DFARS REQUIREMENTS-252.225-7014 WITH ALTERNATE 1 FOR QUALIFYING COUNTRY 225.872.1, SUPERSEDED BY DFARS REQUIREMENTS DFARS 252.225-7008 AND 252.225-7009. WE HEREBY CERTIFY THAT THE ABOVE TEST DATA ARE IN ACCORDANCE WITH THE PURCHASE ORDER AND SPECIFICATION REQUIREMENTS. CERTIFICATE OF TEST IS PREPARED IN ACCORDANCE WITH PARAGRAPH 3.1 OF EN 10204 (DIN50049)

STEPHANIE E. MCCULLUM

QUALITY ASSURANCE ENGINEER

CARPENTER TECHNOLOGY CORPORATION

Castle Metals Fp

HEAT NUMBER

135314

MECHANICAL ID

ITEM CODE

42464

LOT NUMBER

PO NUMBER

58282

RECEIPT DATE

8-13-2010

SUPPLIER

TALLEY

SPECIFICATION

LCS

NO

COMMENT

APPROVED

AV

11/02/08

Stephanie E. McCullum

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CERTIFICATE OF TESTS
CERT. SERIAL# 000736570

ABNAHMEPRUEFZEUGNIS

CERTIFICAT DE CONTROLE



TALLEY METALS
A Carpenter Company

Talley Metals Technology, Inc.
205 Talley Metals Lane
McBee, SC 29101 Tel: (610) 208-2000 (800) 338-4392

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08/05/10

CUSTOMER/BESTELLER/CLIENT

SELLER/VERKÄUFER/VENDEUR PAGE 1 OF 2

A. M. CASTLE & CO.

3400 N WOLF RD
FRANKLIN PARK IL 60131

HVL

CUSTOMER ORDER NO./BESTELL-NR./N° DE COMMANDE	CARPENTER NO./WERKS-NR./N° DE REFERENCE INTERNE	DATE/DATUM/DATE	WEIGHT/GEWICHT/POIDS
58282-007	W71565	08/05/10	1455.000

HEAT NUMBER / SCHMELZE-NR. / N° DE COULEE: 135314

PRODUCT DESCRIPTION: TYPE 17-4 SOLUTION ANNEALED ROUGH TURNED
PART NUMBER: IAC 42464

SPECIFICATION: CASTLE 3174-10 CAP OF COND. H900 REV 8 (04/03/08)
AMS 5643 REV R (02/ /08) (UNS S17400) (AISI 630)
ASTM-A564-04 (2009)
ASME-SA564 2007 EDITION-09B ADDENDA

SIZE 4.000000 IN. (101.60 MM) RD BAR

PRIMARY HEAT CHEMISTRY (WT%): (TEST METHOD IS SHOWN IN PARENTHESIS)

C (COM)	MN (XRF)	SI (XRF)	P (XRF)	S (COM)	CR (XRF)
0.03	0.81	0.39	0.019	0.025	15.18
NI (XRF)	MO (XRF)	CU (XRF)	N (FUS)	CB (XRF)	TA (XRF)
4.28	0.13	3.68	0.030	0.25	LT .02
CB+TA					
0.27					

THIS HEAT MELTED BY THE ARC/AOD PROCESSES

NO WELD REPAIR

MATERIAL IS MANUFACTURED FREE FROM MERCURY, RADIUM AND ALPHA SOURCE CONTAMINATION

HOT REDUCTION RATIO = 6:1

DISCS MACROETCHED AND APPROVED

HARDNESS AS SHIPPED, HBW - 358 (MIDRADIUS)

MAGNETIC PARTICLES: FREQUENCY = 0 / SEVERITY = 0

MICROSTRUCTURE - FERRITE LESS THAN 1.00%

SOLUTION ANNEALED - 1900 F, 1 HOUR - RAPID COOL

auth
11/02/08

CONTINUED ON NEXT PAGE

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